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EXAMINER

GUHARAY, KARABI

ART UNIT PAPER NUMBER

2879

DATE MAILED: 04/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/753,361

Applicant(s)

MORLEY ET AL.

Examiner

Karabi Guharay

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_\_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on Amendment filed on 01/15/04.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4-6, 10, 14-17 is/are allowed.
- 6) ☒ Claim(s) 1-3, 7-9, 11-13, 18-20 is/are rejected.
- 7) ☒ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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Amendment, filed on 01/15/04 has been considered and entered.

Claims 1, 4, 7, 10 and 18-19 are amended. Claim 20 is added.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Mesquida (US 4703219).

Regarding claim 1, Mesquida discloses a light directing apparatus (Fig 1 & Fig 7) comprising a light emitting layer including an array of light emitting elements (21-24, or 41-43) and a light directing layer (91-94 or 31-32) adjacent to the light emitting layer, the light directing layer including an array of light directing elements (lens) in substantial registry with the array of light emitting elements (lines 36-39 of column 4), wherein the light emitting elements (15, 16, 17, 18 of Fig 4) are arranged along a substrate (1) to form a plurality of parallel strips and the light directing elements (11, 12, 13, 14) are cylindrical lenses each of the lenses having a long axis parallel to a respective stripe (lines 33-37 of column 5).

Regarding claim 2, Mesquida discloses that the light directing elements include a plurality of cylindrical lens (Fig 2, & Fig 7).

Regarding claim 3, Mesquida discloses that the each of the lens (91-94) is spaced from a respective light-emitting element (21-24) from about 1 to 3 times the distance between respective light emitting element and an adjacent light emitting element (Fig 2).

Claims 1-2, 11-13, 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Nomura et al. (US 5493427).

Regarding claim 1, Nomura et al. disclose a light directing apparatus (Fig 6) comprising a light emitting layer including an array of light emitting elements (Gn2-Gn1, Gi1-Gi2, G12-G 11, pixel pairs of liquid crystal panel) and a light directing layer (lenslet structure L1-Ln) adjacent to the light emitting layer, the light directing layer including an array of light directing elements (lenses L1-Ln) in substantial registry with the array of light emitting elements (pixels), wherein the light emitting elements (display pixel Di1 Di2--- of Fig 12) are arranged along a substrate (crystal panel 1) to form a plurality of parallel strips and the light directing elements (2) are cylindrical lenses each of the lenses having a long axis parallel to a respective stripe (lines 19-35 of column 15).

Regarding claim 2, Nomura et al. disclose that the light directing elements includes a plurality of cylindrical lens (Fig 6).

Regarding claim 11, Nomura et al. disclose that centers of the light directing elements are offset from centers of the light emitting elements (see Fig 6).

Regarding claim 12, Nomura et al. disclose that a distance between centers of adjacent light directing elements are different from a distance between centers of adjacent light emitting elements (Fig 6).

Regarding claim 13, Nomura et al. disclose that the distance between centers of adjacent light directing elements is less than the distance between centers of adjacent light emitting elements (Fig 6, lines 43-55 of column 1).

Regarding claim 18-19, Nomura et al. disclose a method for directing light from a display incorporating a plurality of light emitting pixel elements (Gi1, Gi2, Gn1, Gn2 of Fig 6) directing light from a first of the plurality of light emitting pixel (Gn1, Gn2) elements through a first light directing element (Ln) in a first preferential direction and directing light from a second of the plurality of light emitting (G12, G11) pixel elements through a second light directing element (L1), where directing the light from the first light directing element in a first preferential direction and directing the light from the second light directing element in a second preferential direction different from the first preferential direction (Fig 6).

Regarding claim 20, Nomura discloses that the liquid crystal panel includes rows and columns of light emitting elements including plural color sub-elements (red, green blue) including light directing means, and the array of light directing means are in registry with the rows of light emitting elements in parallel with the sub-elements (see Fig 12, lines 58 of column 14- 36 of column 15).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C.103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention

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was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C.103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C.103(c) and potential 35 U.S.C.102(e), (f) or (g) prior art under 35 U.S.C.103(a).

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nomura to claim 1 above, and further in view of Matthies et al. (US 6476783).

Regarding claim 7, Nomura discloses all the limitations of claim 7 except for a contrast-enhancing coating formed within inactive regions of the light directing apparatus. However, Matthies et al. disclose a light directing apparatus (see Fig 19) where area between the lenses on the viewer surface of the display (inactive regions) coated with a back material in order to enhance contrast for the display (see Abstract).

Thus it would have been obvious to one having ordinary skill in the art at the time the invention was made to have black coating in an inactive region of the light directing apparatus, as disclosed by Matthies et al., since this will enhance the contrast of the display.

Claims 8-9 rejected under 35 U.S.C. 103(a) as being unpatentable over Mesquida as applied to claim 1 above, and further in view of Ishihara et al. (US 6535256).

Referring to claims 8-9, Mesquita discloses all the claimed limitations except for an integration plate adjacent to the light directing layer and an optical adhesive between the integration plate and the light-directing layer.

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However, Ishihara et al. discloses a light directing apparatus where there is an integration plate (8c of Fig 4) adjacent to the light directed layer (lens array 8a) having an optical adhesive layer 8b between them (lines 61-67 of column 5), and further teaches that this arrangement avoids loss of light, thus enhances the brightness of the image.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a integration plate attached to the lens array of Mesquita with an optical adhesive as disclosed by Ishihara et al. since this will reduce loss of light and increase the brightness of the image.

***Allowable Subject Matter***

Claims 4-6, 10, 14-16 are allowed over the prior art of record.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 4, the prior art of record neither shows nor suggests a light directing apparatus comprising all the claimed limitation of claim 4, particularly comprising means for indexing the light emitting layer relative to the light directing layer.

Regarding claim 10, the prior art of record neither shows nor suggests a light directing apparatus comprising all the limitations of claim 10, particularly comprising a limitation of optical adhesive has an index of refraction falls between an index of refraction of the light directing layer and an index of refraction of the optical integration plate.

Regarding claim 14, the prior art of record neither shows nor suggests a combination of limitations set forth in claim 14.

***Response to Arguments***

Applicant's arguments filed 01/15/04 have been fully considered but they are not persuasive.

Mesquida does teach all the elements of amended claim 1 (see rejection of claim 1) light emitting elements (15-18) are formed along the substrate (1) and Fig 4 clearly shows that each of cylindrical lenses having a long axis parallel to a respective stripe.

Regarding rejection of claims based on Nomura et al. applicant contends that (1) each cylindrical lens runs vertically along the display and (2) cylindrical lens are not in substantial registry with a display element rather correspond to a pair of display element.

First of all, it is not clear what applicant meant by "cylindrical lens runs vertically along the display". Indeed it is vertically above the display units.

Nomura discloses (lines 34-36 of column 15) that the longitudinal direction of the cylindrical lens is in conformity with the array direction, which means they are parallel, which is claimed in claim 1.

Examiner agrees that each of the display element of Nomura does not correspond to each lens. There is not a one to one correspondence, however, claim 1 recites that array of light directing elements in substantial registry with the array of light emitting element, that means whole array of light emitting elements are in registry with array of lenses which clearly shown in Fig 6.



Regarding claims 11-13, Center of each display element (pixel pairs) is offset with the center of the cylindrical lens.

Regarding claim 18, applicant added the limitation of first preferential direction, however, applicant contends that Nomura shows light is directed in two directions (toward J and I), however, one of these direction could be the claimed first preferential direction.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karabi Guharay whose telephone number is (703) 305-1971. The examiner can normally be reached on Monday-Friday 8:30 am - 5:00 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (703) 305-4794. The fax phone number for the organization is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

*Karabi Guharay*  
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Art Unit 2879

  
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PRIMARY EXAMINER